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CLAIMS

What is claimed is:

1. A stent device to monitor parameters related to an endoluminal stent graft, comprising:

at least one compliance sensor to measure compliance between a stent graft and a lumen.
2. The device of claim 1, comprising at least one pressure sensor to measure endoluminal pressure.
3. The device of claim 2, wherein said at least one pressure sensor is adapted to measure pressure at an aneurism of said lumen.
4. The device of claim 2, wherein said at least one pressure sensor is adapted to measure endoluminal pressure using functions selected from the group consisting of blood freshness detection, electrochemical detection, blood color intensity, and blood color shade.
5. The device of claim 1, comprising a transmitter to transmit signals from said stent device to an external unit.
6. The device of claim 1, comprising a controller to control monitoring of parameters related to the endoluminal stent graft.
7. The device of claim 1, comprising an antenna to receive signals from an external unit.
8. The device of claim 7, wherein said antenna is configured to receive energy from an external power source.

9. The device of claim 1, further comprising at least one expansion mechanism which, when activated, is adapted to enable the stent graft to conform to the morphology of said lumen.
10. The device of claim 2, wherein said pressure sensor is selected from the group consisting of a J-shaped tube, and a strain measurement mechanism.
11. The device of claim 1, wherein said compliance sensor comprises a sensor connected to a pressure-sensing chamber located between two sections of a squeezable tube.
12. The device of claim 1, wherein said compliance sensor is adapted to measure parameters selected from the group consisting of compliance between the endoluminal stent and a lumen wall, strain on the endoluminal stent, expansion of an aneurism, pressure on the endoluminal stent, pressure inside the lumen, and pressure outside the lumen.
13. A stent device comprising:
a stent graft; and
at least one anchoring mechanism to attach said stent graft to an aneurism section of a vessel wall.
14. The device of claim 13, wherein said at least one anchoring mechanism comprises at least one anchoring element selected from the group consisting of hooks, wire mesh, glues and polymers to be embedded in a vessel wall.
15. An expandable stent device comprising:
a stent graft; and

at least one expansion mechanism associated with said stent graft and adapted to be activated in response to an external trigger, thereby to adjust the shape of the stent device to correct adverse stent-related conditions at a desired time after initial implantation of the stent device.

16. The device of claim 15, wherein said stent activator activates said at least one expansion mechanism using energy selected from the group consisting of heat, acoustic energy, energy from a chemical reaction, and data signals.
17. The device of claim 15, wherein said at least one expansion mechanism comprises at least one mechanism selected from the group consisting of a neck expansion mechanism, a body expansion mechanism, and an anchoring mechanism.
18. The device of claim 15, wherein said expansion mechanism comprises an expandable element configured to conform to the morphology of a host vessel.
19. The device of claim 15, wherein said expansion mechanism comprises an expandable element configured to urge said stent device against a wall of a host lumen, thereby to improve compliance between said stent device and said host lumen.
20. The device of claim 15, comprising an antenna, said antenna adapted to receive electromagnetic energy from outside a patient to power the stent device.
21. An endoluminal stent system comprising:

a stent device comprising at least one compliance sensor to measure compliance between a stent graft and a lumen; and

an external unit to receive from said stent device signals responsive to said compliance.

22. The system of claim 21, wherein said external unit is able to process the signals received from said stent device.

23. The system of claim 21, comprising an external stent activator to activate at least one expansion mechanism of said stent device.

24. The system of claim 23, wherein said external stent activator activates at least said expansion mechanism by transmitting energy to said stent device.

25. The system of claim 21, comprising a workstation to activate at least one expansion mechanism of said stent device.

26. The system of claim 21, wherein said external is able to supply energy to said stent device.

27. A method to monitor an aneurism, comprising measuring compliance between a stent graft and a lumen.

28. The method of claim 27, comprising transmitting a signal including data relating to said compliance.

29. The method of claim 27, comprising measuring endoluminal pressure.

30. The method of claim 27, comprising processing monitored data relating to said compliance.

31. The method of claim 27, comprising receiving energy from an external power source.
32. A method to externally operate an endoluminal stent after initial implantation of the stent, comprising:
- activating at a desired future time after installation of said stent an expansion mechanism associated with said stent by externally triggering an activation trigger associated with said expansion mechanism.
33. The method of claim 32, wherein said expansion mechanism is selected from the group consisting of a neck expansion mechanism, a body expansion mechanism, and an anchoring mechanism.
34. The method of claim 32, comprising anchoring said stent device to the specific morphology of a vessel wall.
35. The method of claim 32, wherein activating said expansion mechanism facilitates functions selected from the group consisting of preventing stent migration, slowing aneurism growth, and treating endoleaks.